

CLAIMS

What is claimed is:

1 1. A method for measuring at least one of a Kerr effect and lubricant thickness on a
2 first object, comprising the steps of:
3 transmitting a first light signal toward the first object;
4 receiving a reflected light signal that has reflected off said first object, said reflected light
5 signal comprising a first mixed reflected polarized component having a first phase and a second
6 mixed reflected polarized component having a different phase;
7 separating from said reflected light signal said first mixed reflected polarized light signal
8 component having a first phase and said second mixed reflected polarized light signal component
9 having a different phase, wherein said first mixed reflected polarized light signal component
10 comprises both P-polarized and S-polarized light relative to the plane of incidence of said
11 reflected light signal, and wherein said second mixed reflected polarized light signal component
12 comprises both P-polarized and S-polarized light relative to the plane of incidence of said
13 reflected light signal;
14 detecting a first intensity of said first mixed reflected polarized light signal component;
15 detecting a second intensity of said second mixed reflected polarized light signal
16 component;
17 determining a difference in phase between said first and second mixed reflected polarized
18 light signal components based upon said first and second intensities; and
19 measuring at least one of the Kerr effect and the lubricant thickness based upon said
20 difference in phase.